

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

ASCS

AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

AERIAL PHOTOGRAPHY SPECIFICATIONS

ASCS - AP - 201



United States Department of Agriculture
Washington, D. C.

NOTICE TO USERS

1. This specification will be serviced by amendments numbered in consecutive sequence. The first changes will be sent with amendment number one.
2. When changes are to be made on a page, the complete page will be reprinted and sent to replace the old page.
3. File transmittal amendments and removed pages in the section provided for this purpose in the back of the book. All removed pages should be retained in order to determine which provisions of the specification were in effect at particular times for specific contracts.
4. New material on pages will be enclosed in asterisks, thus *--new material--*.
5. Change transmittal amendments will contain a page control chart showing old pages to be removed and new pages to be inserted.
6. Pages and paragraphs herein are numbered in straight numerical sequence. If it is necessary to insert pages or paragraphs, a decimal number will be used. For example, a paragraph (or page) inserted between 26 and 27 would be numbered 26.1.
7. It is important to assure that you have received all amendments in consecutive sequence. If you find that you have missed a particular amendment request the missing amendment by letter addressed to Director, Compliance and Aerial Photography Division, Agricultural Stabilization and Conservation Service, U. S. Department of Agriculture, Washington 25, D. C.

FOREWORD

These specifications have been prepared by the Agricultural Stabilization and Conservation Service, United States Department of Agriculture, and become in effect a part of all advertisements and resultant contracts for new aerial photography issued by this Service after November 1, 1961. The primary purpose of this publication is to provide under one cover a current set of aerial photography specifications incorporating the latest developments with respect to equipment, materials and techniques, commensurate with the needs of this Service.

All or any part of the specifications may be used to the extent required by persons, organizations or other agencies of the Government.



Director, Compliance and
Aerial Photography Division



Director, Administrative
Services Division

TABLE OF CONTENTS

	<u>Page No.</u>
PART 1. SPECIFICATIONS FOR SINGLE LENS PRECISION AERIAL MAPPING CAMERA	
1. Constructional Details Necessary to Permit Testing	1
A. Focal Plane	1
B. Focal Plane Frame	1
2. Constructional Details Required for Metrical Precision	1
A. Platen	1
B. Lens Assembly	2
C. Shutter	2
D. Fiducial Marks	2
E. Dimensional Tolerances	2
FIGURE 1. Design of Fiducial Marks for a Precision Airplane Mapping Camera	3
F. Lens Identification	4
3. Lens Specifications	4
A. Resolution	4
B. Distortion	4
C. Filter	5
D. Tolerance Exceptions	5
4. Information to be Included in Test Report	5
PART 2. TECHNICAL SPECIFICATIONS FOR AERIAL PHOTOGRAPHY	
SECTION 1. PERSONNEL AND EQUIPMENT	
5. Aircraft	7
6. Photographic Crew	7
7. Aerial Mapping Camera and Filter	7
8. Laboratory	8
A. Copy Camera	8
B. Contact Printer	8
C. Vacuum Printer	8
D. Processing Equipment	8
SECTION 2. APPROVED PHOTOGRAPHIC MATERIALS	
9. Film	8
A. Aerial Roll Film	8
B. Photo-Index Film	8
10. Prints	8
A. Polyester Base Contact Print Material	8
B. Singleweight Contact Print Material	9
C. Photo-Index Print Material	9

	<u>Page No.</u>
SECTION 3. PERFORMANCE OF PHOTOGRAPHY	
11. Definitions	9
A. ASCS	9
B. Item	9
C. Portion	9
D. Block	9
E. Original Photography	9
F. Reflight Photography	9
G. Photographic Mission	9
H. Remake Materials	9
12. Overall Basic Requirements	10
13. Areas to be Flown	10
14. Classified Areas and Security Clearance	10
15. When Photography Shall be Undertaken	10
16. Flight Line Maps	11
17. Individual County and Block Flying	11
18. Scale	11
19. Exposure Stations	11
20. Flight Line Direction	12
21. Flight Strip	12
A. Position	12
B. Reflight Photography	13
C. Breaks	13
22. Reserved	13
23. Overlap	13
A. Endlap	13
B. Sidelap	13
C. Deviations Due to Elevation	13
24. Boundary Coverage	14
A. Ends of Flight Strips	14
B. Parallel to Flight Strips	14
25. Crab	14
26. Tilt	14
SECTION 4. PROCESSING OF PHOTOGRAPHIC MATERIALS	
27. Quality of Negatives and Prints	14
A. Photographic Quality	15
B. Physical Quality	15
C. Dimensional Stability	16
28. Composition of Negative Roll	16
29. Splicing Polyester Base Film	17
30. Editing of Aerial Negatives	17
A. Required Editing	17
B. Editing Negatives from Reflights Required by ASCS	18
C. Type and Size of Characters and Application	18
D. Position of Editing	18

SPEC. ASCS-AP-201

	<u>Page No.</u>
E. Assigning Roll Numbers	18
F. Assigning Symbols	19
G. Rejected Negatives	19
31. Photographic Index of Aerial Photography	19
A. Assembly of Singleweight Contact Prints	19
B. Editing Stickups to be Placed on Assembly	20
C. Title Block	20
FIGURE 2. Photo Index and Title Block Design	21
FIGURE 3. Title Block Design	22
D. Orienting the Index Sheet	23
E. Scale of Photo-Index Negatives	23
F. Preparation of Photo-Index Negatives	23
G. Photo-Index Prints	24
H. Remaking the Photo-Index Negatives and Prints	24
SECTION 5. PHOTOGRAPHIC MATERIALS TO BE DELIVERED	
32. Negatives and Prints	24
33. Shipment of Photographic Materials	25
A. Preparation of Film for Shipment	25
B. Film Cans	25
C. Film Can Labels	26
D. Packaging for Shipment	26
E. Receipt from Common Carrier	26
 PART 3. SPECIAL CONDITIONS	
34. Conditions of Bidding	27
A. Bidder Qualifications	27
1. Financial Statement	27
2. Statement of Facts	27
3. Samples	27
B. Camera Test Reports	28
C. Bidder Responsibility	28
D. Requests for Clarification	28
35. Specifications Form Part of Contract	28
36. Notice to Proceed	28
37. Notice of Base Address	28
38. Photographic Season	29
39. Maximum Period for Photography	29
40. Time Allowance for Shipment of Materials	29
41. Payments	29
A. First Year Completion Incentive Payment	29
B. Payment for Second Year Shipments	30
42. Weekly Progress Reports	30
43. Liquidated Damages	30
44. Termination for Default	30

EXHIBIT

Exhibit 1 - Invitation, Bid and Award (Aerial Photography)

No. Pages
4

TRANSMITTAL AMENDMENTS AND REMOVED PAGES (Divider)

PART 1

Precision Aerial Mapping Camera

PART 1. SPECIFICATIONS FOR SINGLE LENS
PRECISION AERIAL MAPPING CAMERA

1. CONSTRUCTIONAL DETAILS NECESSARY TO PERMIT TESTING.

In order to permit the necessary tests for the determination of the calibrated focal length, distortion and position of principal point of auto-collimation without the introduction of errors resulting from film shrinkage, the camera shall be constructed in accordance with the following requirements: It shall be possible to insert a photographic plate having a thickness of 1/4 inch between the frame that determines the position of the focal plane and the platen that normally flattens the film in the focal plane.

A. Focal Plane. The focal plane shall be accessible from the rear so that a telescope, placed behind the camera and directed along the axis of the lens, may view objects through the camera lens. The opening providing this unobstructed vision shall be not less than two inches in diameter and may be provided by removable screw caps or by the partial disassembly of the magazine and the removal of the platen that presses the film against the focal plane. The removal of parts to secure this vision shall not include the removal of the fiducial index markers or of the frame that determines the location of the focal plane.

B. Focal Plane Frame. The focal plane frame shall be such that when a glass photographic plate is pressed against the surface of the frame, the emulsion surface of the plate shall lie in the focal plane of the lens or so near thereto that the accuracy of the determinations of the metrical characteristics will not be impaired.

2. CONSTRUCTIONAL DETAILS REQUIRED FOR METRICAL PRECISION.

A. Platen. The portion of the surface of the platen against which the film is held to insure its planeness shall not depart more than plus or minus 0.0005 inch from a true plane.

B. Lens Assembly. The lens barrel shall be so constructed that disassembly for cleaning the inner lens surfaces of the front and rear lens cells or repairing the shutter and reassembly shall introduce no changes in the calibration constants greater than their probable errors. Disassembly of the lens beyond that required for cleaning the inner surfaces of the front and rear lens cells or repairing the shutter shall be prevented by lock screws or equivalent devices. In the event of any disassembly of the lens assembly beyond those stated, the camera shall be recalibrated before further use.

C. Shutter. The camera shall be equipped with a between-the-lens shutter of the variable-speed type. True shutter speeds both total and effective shall be known by the contractor. Provision shall be made for holding the shutter leaves open for laboratory tests.

D. Fiducial Markers.

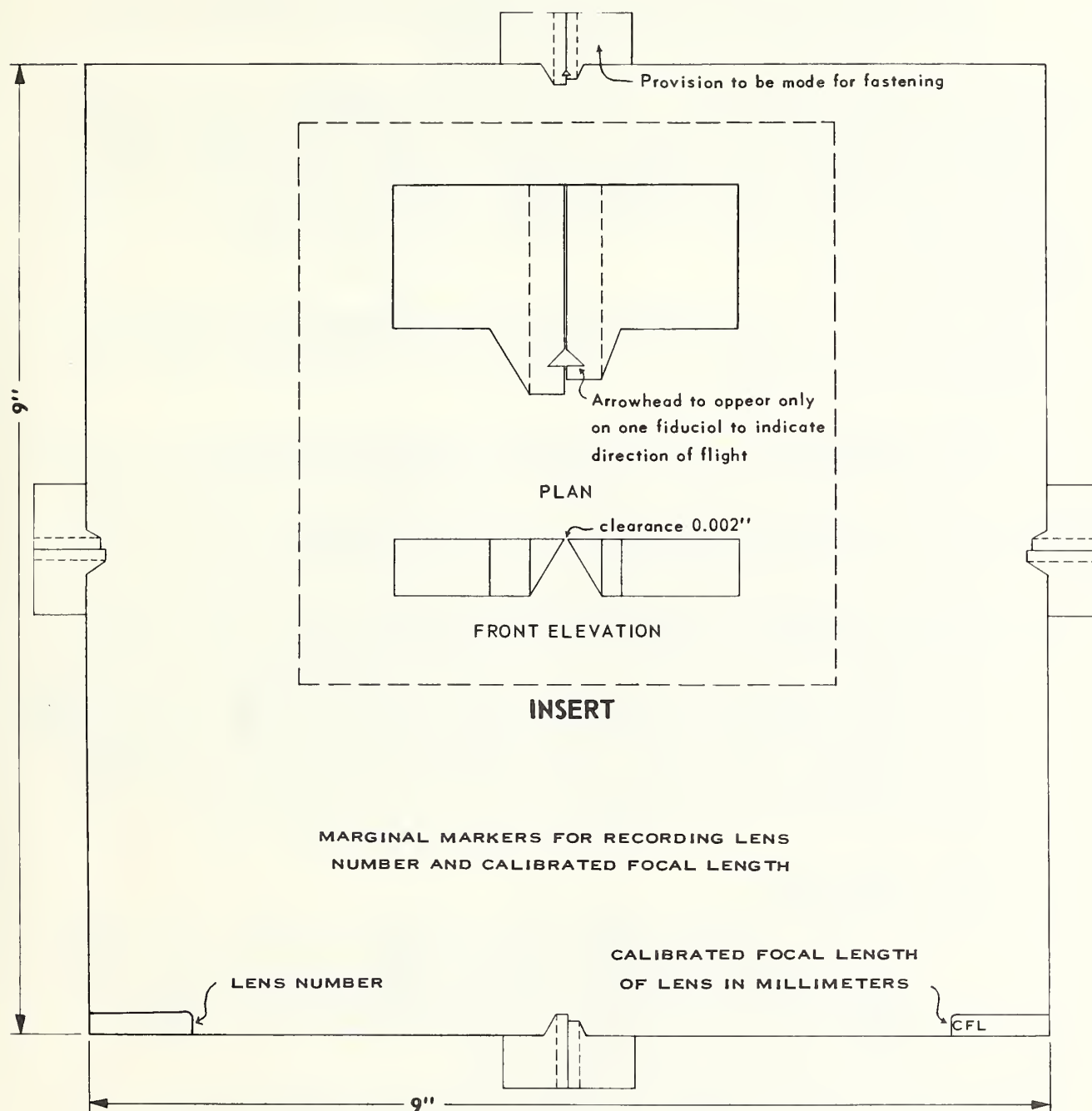
1. The fiducial index markers should be as shown in Figure 1 which forms a part of these specifications. The lines joining the opposite numbers of the two pairs of index markers shall intersect at an angle of 90° plus or minus 1 minute and shall indicate the location of the principal point of auto-collimation with a probable error not exceeding plus or minus 0.03 mm.

2. The fiducial marker should be capable of registering a clean, smooth line, with the shrinkage marker shoulder a true 90° to the calibration slit. The edges of the calibration slit shall be parallel with a separation of 0.002 inch. The symmetry of a marker with respect to the opposite member of the pair shall be such that corresponding straight lines or edges registered by the marker shall be parallel within ten (10) minutes of arc.

E. Dimensional Tolerances.

1. The dimensional changes of the camera arising from causes other than temperature shall be sufficiently small to permit the determination of the calibrated focal length with a probable error not exceeding plus or minus 0.05 mm.

FIGURE 1



DESIGN OF FIDUCIAL MARKS
FOR
A PRECISION AIRPLANE MAPPING CAMERA

2. The dimensional changes arising from temperature or other variations likely to be encountered in use shall not be inconsistent with the determination of the location of the principal point of auto-collimation with a probable error not exceeding plus or minus 0.03 mm.

F. Lens Identification. Marginal markers shall be provided as shown in Figure 1 to permit recording of the lens number and the calibrated focal length on each negative. The markers shall not exceed 0.25 inch in height and 1 inch in length.

3. LENS SPECIFICATIONS.

All tests of the lens contributing to the determination of the calibration constants of the camera will be made with the lens mounted in the camera.

A. Resolution. No lens shall be used which fails to resolve lines in any orientation spaced 20 lines to the millimeter at the center of the field; or which fails to resolve lines in any orientation spaced 10 to the millimeter at all 5° (or 7.5°) intervals lying between the center and edge of the usable field; or which fails to resolve lines in at least one orientation spaced 3.5 to the millimeter at the angular distance falling within the field and nearest the corner of the negative. The resolution test shall be made in accordance with the standard practice of the National Bureau of Standards. Resolution tests shall be made using high contrast targets and Eastman Spectroscopic Type V-F Plates or equivalent and supersensitive panchromatic emulsion or equivalent.

B. Distortion.

1. For a camera using 9" x 9" film or plates and having a lens of approximately 8 inch focal length, the radial distortion, referred to the calibrated focal length, shall not exceed plus or minus 0.03 mm out to 30° and not to exceed 0.10 mm at 35° .

2. No lens shall be used which has radial asymmetric distortion in excess of plus or minus 0.02 mm. at any point in the field. (This signifies that the values of distortion obtained at two equal but opposite angular separations from the axis along the same diameter shall not differ by an amount in excess of plus or minus 0.04 mm.)

3. No lens shall be used which has tangential distortion in excess of 0.015 mm.

C. Filter. Any filter used shall be of such quality that no appreciable reduction of resolution will result. No filter shall be used having surfaces that depart from parallelism by an amount in excess of 10 seconds of arc.

D. Tolerance Exceptions. The tolerances for resolution and distortion embodied in these specifications do not apply to cameras equipped with lenses of equivalent focal length of $6\frac{1}{2}$ inches or less, or 10 inches or more, nor to cameras making negatives larger than 10 x 10 inches. For such cameras the appropriate tolerances shall be specified by the contracting agency.

4. INFORMATION TO BE INCLUDED IN TEST REPORT.

- A. Calibrated and equivalent focal length in millimeters.
- B. The tangential and radial values of resolving power at 5° or 7.5° intervals for:
 - 1. Eastman Spectroscopic Type V-F emulsion or equivalent and
 - 2. Supersensitive panchromatic emulsion or acceptable equivalent.
- C. Values of the radial distortion referred to:
 - 1. Equivalent focal length and
 - 2. Calibrated focal length.
- D. Value of distance separating opposite fiducial markers.
- E. Maximum value of tangential distortion.
- F. Location of principal point of auto-collimation.
- G. Departure of angle between lines joining opposite pairs of fiducial markers from $2D$.
- H. Parallelism of filter.
- I. Planeness of platen.

J. Effective shutter speed.

K. Effect of shutter vibration on lens resolution.

(The information in sub-paragraphs J and K will be furnished when the National Bureau of Standards is equipped to perform such tests.)

NOTE: In those cases where the requirement of 1B is not met insofar as the focal plane frame is concerned, the camera will be considered as meeting the requirement if the emulsion surface of the glass plate can be placed in the focal plane by being supported at four points mechanically set in the camera for that purpose prior to shipping the camera for the test.

PART 2
Technical Specifications

PART 2. TECHNICAL SPECIFICATIONS FOR AERIAL PHOTOGRAPHY

SECTION 1. PERSONNEL AND EQUIPMENT

5. AIRCRAFT.

The photographic aircraft to be used in the performance of contract work shall be equipped with all the essential navigational and photographic instruments and be capable of maintaining an altitude above ground level during photographic operations to yield aerial negatives at the scale specified in the Bid Schedule.

6. PHOTOGRAPHIC CREW.

The pilot and aerial photographer employed to perform photographic work shall be qualified and fully competent to secure photography in conformance with these specifications or any deviations or additions thereto contained in the Bid Schedule. The Agricultural Stabilization and Conservation Service retains the right to disapprove any pilot or photographer assigned to work on a contract area upon evidence of inability of the person or persons to perform work in accordance with the specifications.

7. AERIAL MAPPING CAMERA AND FILTER.

Any camera and filter (use of an appropriate minus blue filter is required) to be used in securing aerial photography for ASCS as a result of a contract awarded after the date of these specifications, shall meet the requirements of Part 1, Precision Camera Specifications, as evidenced by a National Bureau of Standards certificate, prior to using the camera on the item. Each camera shall be in proper adjustment and operating condition throughout the entire period of its use on contract work. The ASCS shall have the right to require the removal of a camera from use when deficiencies in the photographic materials attributable to the camera are found to exist. Any camera removed from use by ASCS shall not be returned to use on work for ASCS until the cause of the malfunction is corrected to the satisfaction of ASCS, whose determination will be based on additional acceptable samples as required under paragraph 3⁴ and an additional test by the Bureau of Standards if needed. Each camera shall be provided with identifying markers which will reproduce the lens number and the calibrated focal length on the edge of each negative. The identifying marks shall not obscure any part of the collimation markers.

8. LABORATORY.

The contractor's laboratory shall be adequately equipped, and staffed with sufficient personnel to facilitate the production of high quality photographic materials in such volume as the contract may require. Laboratory equipment shall include the following and any other equipment as may be specified in the Bid Schedule:

A. Copy Camera equipped with suitable lens and lights for copying a photo-index assembly to a scale of one inch equals one mile on 20" x 24" sheet film.

B. Contact Printer suitable for printing 9" x 9" contact prints.

C. Vacuum Printer suitable for contact printing 20" x 24" photo-index prints.

D. Processing Equipment for aerial film including drying by natural means.

SECTION 2. APPROVED PHOTOGRAPHIC MATERIALS

9. FILM.

A. Aerial Roll Film. Only fine-grained high speed unexpired polyester base panchromatic aerial film, or equal, shall be used and no type film shall be used until it has been approved by ASCS. The film shall have an ASA rating sufficient to insure normal exposure at optimum lens opening under the available light conditions which can be expected to prevail in the contract area. The film shall be not less than .004 inch in thickness and nine and one-half ($9\frac{1}{2}$) inches in width, normally two hundred and fifty (250) feet in length on a five and one-quarter ($5\frac{1}{4}$) inch spool.

B. Photo-Index Film. Only unexpired, fine-grained, commercial safety base film shall be used.

10. PRINTS.

A. Polyester Base Contact Print Material. All low-shrink contact prints required under the contract shall be printed on unexpired white opaque polyester base contact printing material having a thickness of not less than .007 and semi-matte surface, and no type low-shrink contact printing material shall be used until it has been approved by ASCS.

B. Singleweight Contact Print Material. All singleweight contact prints as required in these specifications for preparation of the photo-index assembly shall be printed on unexpired standard, commercial grade, glossy, singleweight photographic paper.

C. Photo-Index Print Material. All photo-index sheets required under the contract shall be printed on unexpired standard, commercial grade, semi-matte, singleweight photographic paper.

SECTION 3. PERFORMANCE OF PHOTOGRAPHY

11. DEFINITIONS.

A. ASCS as used herein shall mean the Agricultural Stabilization and Conservation Service acting through the contracting officer or any other official of ASCS designated to serve as his representative.

B. Item means an area described in the Bid Schedule for which award will be made to one bidder.

C. Portion means that part of an item designated as either northern or southern for purposes of seasonal flying and incentive payments.

D. Block means a group of counties or parts thereof which may be photographed as one contiguous area.

E. Original Photography means all photography as secured by the contractor for a county or block prior to its shipment for inspection by ASCS, including any necessary reflights made at the discretion of the contractor.

F. Reflight Photography means photography reflown at the request of ASCS.

G. Photographic Mission means all photography secured on single trip without returning to the base of operations.

H. Remake Materials means photo-index negatives, photo-index prints or contact prints remade at the request of ASCS.

12. OVERALL BASIC REQUIREMENTS.

The contractor shall furnish all necessary materials, supervision, labor, equipment and transportation, and shall execute and finish the aerial photography of the areas under contract and shall deliver all photographic materials specified under Section 5 hereof. All work shall be executed in an expeditious and workmanlike manner in accordance with these specifications and other conditions of bidding set forth in the Bid Schedule. Photographic materials delivered by the contractor which do not meet all requirements of these specifications may be rejected by ASCS. The contractor shall furnish acceptable replacement materials for all photographic materials rejected by ASCS.

13. AREAS TO BE FLOWN.

The location, dimensions and sizes of the areas to be photographed are set forth in the Bid Schedule and on maps attached thereto. It shall be expressly understood and agreed that such dimensions and square miles are approximate only.

14. CLASSIFIED AREAS AND SECURITY CLEARANCE.

Attention of contractors is directed to all existing regulations concerning restrictions and procedures on photographing classified military installations and on reproducing, publishing, or selling photographs of such installations. The contractor must meet Department of Defense security requirements before photographing any Department of Defense or other installation which is classified for the purpose of aerial photography when all or a portion of such an installation is located within an area to be photographed. This, however, shall not prevent the securing of photography on other areas in the same item during the period in which facility security clearance is being arranged. Photographic materials resulting from photography of classified areas shall be stored, handled and shipped in accordance with existing regulations.

15. WHEN PHOTOGRAPHY SHALL BE UNDERTAKEN.

Photography shall be undertaken when the skies are clear and well-defined images can be resolved. The ground shall be free from snow, standing water, (other than natural or man-made ponds and lakes) and flood waters from streams which have overflowed their

normal banks. Photography shall be undertaken only during that portion of the day when the sun is $3\frac{1}{2}$ hours or more above the horizon, except in areas of extreme topographic relief where the undertaking of photography shall be further confined to that portion of the day when the sun is sufficiently high to avoid or significantly reduce shadows caused by such relief. Photographic operations shall be limited to the time of year specified in the Bid Schedule or as otherwise provided in writing by ASCS.

16. FLIGHT LINE MAPS.

Three basic maps of each county to be photographed, together with a set of master maps showing the flight line positions and exposure stations will be furnished to the contractor. The master map shall be used by the contractor as a reference for precise plotting of the flight lines and exposure stations on his three copies, and shall be returned to ASCS upon completion of such use.

17. INDIVIDUAL COUNTY AND BLOCK FLYING.

Each county shall be flown separately except where block flying is specifically authorized in the Bid Schedule. Counties included in a block may be flown individually, at the option of the contractor, provided the flight lines used are those indicated for block flying.

18. SCALE.

Exposures shall be made at the proper altitude or altitudes to yield negatives at the scale specified in the Bid Schedule. The scale shall be computed from the mean elevation of the area to be covered by each flight strip. Photographs showing a departure from the specified scale of more than plus or minus 5 percent in excess of that caused by variations in relief within the area covered may be rejected.

19. EXPOSURE STATIONS.

All exposures shall be made on exposure stations as designated by ASCS. Every effort shall be made to assure that exposures coincide with the designated exposure stations as closely as possible. Deviations from maximum and minimum endlap requirements

as specified under paragraph 23A hereof will be permitted to the extent that exposure stations as designated by ASCS are greater or less than one mile apart, except that in no case shall end-lap be less than 55 percent. Exposures which do not meet these requirements or which vary from the designated exposure stations by more than 1/4 mile in the direction parallel to the line of flight may be cause for rejection. Full compliance with this provision will be expected in sectionalized areas where the section lines are readily identifiable, and in non-sectionalized areas where the needed orientation can be maintained by the qualified photographic crew. Compliance with this provision will generally not be required in vast rangeland, forested or mountainous areas where an absence of features prevent proper orientation from the air. Exposure station designations for such areas will serve primarily as guides.

20. FLIGHT LINE DIRECTION.

The direction of flight for all areas shall be as indicated in the Bid Schedule and as shown on ASCS copies of flight line maps furnished to the contractor. The ASCS reserves the right to change the direction of flight in those cases where a change is found necessary. If the direction of flight is changed, notification of such change will be given prior to the time any photography for the county in question has been secured, and the related flight line map corrected accordingly.

21. FLIGHT STRIP.

A flight strip shall be the strip resulting from flying the full course of a flight line across a county or across a block of counties when block flying is authorized in the Bid Schedule. Any segment of a flight strip resulting from necessary breaks shall consist of no fewer than 8 exposures. All flight strips of photographs shall meet the following additional requirements:

A. Position. All flight strips shall be centered over flight lines as plotted by ASCS. Every effort shall be made to assure that each flight strip follows its plotted location as closely as possible and no strip or section thereof shall depart from its plotted location by more than 40 percent of the specified mean sidelap distance. Failure of any flight strip or section thereof to meet these requirements may be cause for rejection.

B. Reflight Photography. Reflight photography shall be centered over the flight lines for which reflights are required. The requirements pertaining to a flight strip shall also apply to reflight photography of an entire flight strip and to a combination of original photography and reflight photography comprising a flight strip.

C. Breaks. Where breaks in a flight strip are necessary, the tolerances applicable to the individual segments resulting therefrom shall not be in excess of the tolerances permitted in this paragraph and in paragraph 23, except that the minimum endlap at any such break shall not fall below 100 percent.

22. RESERVED.

23. OVERLAP.

A. Endlap. The endlap (overlap in the line of flight) shall approximate 65 percent with the minimum and maximum endlap to be not less than 60 percent or more than 70 percent respectively, except that deviations from maximum endlap will be permitted to the extent that exposure stations as designated by ASCS are less than one mile apart.

B. Sidelap. The sidelap between adjacent parallel flight strips shall approximate 30 percent and the minimum and maximum sidelap shall not be less than 15 percent or more than 45 percent, respectively, except that deviations from the maximum sidelap requirements will be permitted to the extent that flight lines as plotted by ASCS are less than two (2) miles apart.

C. Deviations Due To Elevation. In cases of extreme variations in elevation within any area, deviation from the requirements of subparagraphs A and B of this paragraph may be permitted, provided, in the opinion of ASCS, topographic features within the area warrant such deviation. Under such circumstances deviations from the specifications will be limited to the amount actually caused by the variation in elevation, except that any endlap of less than 55 percent and/or any sidelap of less than 10 percent may be considered sufficient grounds for rejecting any or all of the photographs in the flight strips involved.

24. BOUNDARY COVERAGE.

A. Ends Of Flight Strips. Where the boundary of the area to be photographed is essentially perpendicular to the flight lines, the first and last photographs of each flight strip shall fall at least 75 percent outside of such boundary. When the boundary runs at an angle with the flight lines, there shall be sufficient exposures at the ends of each flight strip to provide stereoscopic coverage to a point at least one (1) mile outside of such boundary.

B. Parallel To Flight Strips. Where the boundary of the area to be photographed is parallel to the flight lines, the sidelap beyond such boundary shall not be less than 15 percent, unless otherwise provided in the Bid Schedule.

25. CRAB.

Any series of two or more consecutive photographs crabbed in excess of 10° as measured from the plotted flight line may be considered unsatisfactory and cause for rejection of that particular flight strip of negatives or portion thereof in which the crab occurs.

26. TILT.

Negatives made with the optical axis of the camera in a vertical position are desired and tilt (departure from the vertical) of any negative exceeding 4° or averaging more than 2° in any six mile section of a flight strip or more than 1° for the entire county area, or relative tilt between any two successive negatives exceeding 6° may be cause for rejection.

SECTION 4. PROCESSING OF PHOTOGRAPHIC MATERIALS

27. QUALITY OF NEGATIVES AND PRINTS.

Exposing and processing of all photographic materials shall be done in conformance with manufacturer's recommendations.

A. Photographic Quality. Negatives and prints shall be clear and sharp in detail and of normal density and fine grained quality. Negatives of medium density requiring moderate printing time, without sacrificing detail or contrast, are desired. The degree of contrast shall be such that detail shows clearly in the shadow and highlight areas as well as in the intermediate areas. The basis for determining acceptability of aerial negatives with respect to density and contrast will be density readings taken of the thinnest portion and of the densest portion of the negative, using a densitometer having a scale range of 0.0 to 3.0. The DIFFERENCE in such densitometer readings (contrast) between the lightest and darkest portions of the negative shall not be less than 0.50, nor more than 1.25. No densitometer reading shall be less than 0.25 nor more than 1.50 after deducting the densitometer reading for the unexposed area between negatives. Emulsion fog shall not exceed 0.10. Emulsion fog is defined as fog caused by changes in the emulsion itself and does not apply to the optical properties of the film base material. Proper allowance will be made for areas of low contrast and the density range requirement may be waived if in the opinion of ASCS the contractor has exercised reasonable care to assure that the negatives meet density requirements. Negatives and prints shall be free from streaks, static marks, clouds, cloud shadows, smoke, haze, snow, excessive shadows and other deficiencies which would interfere with their intended use. Reducing or intensifying of negatives will not be permitted.

B. Physical Quality. Special care shall be exercised in processing all photographic materials to insure freedom from chemicals, stains, tears, scratches and water marks, finger marks, lint, dirt and other physical defects. Before, during and after drying, the negatives and prints shall not be rolled tightly on drums or in any way stretched, buckled, distorted or exposed to excessive heat. After fixation, all negatives and prints shall be thoroughly washed to insure freedom from residual hypo and other chemicals which might impair permanency. Excessive moisture should be removed immediately after washing. Film or prints found to contain residual hypo in excess of one-twentieth (1/20) milligram per square inch may be rejected or returned to the contractor for additional washing.

C. Dimensional Stability. To insure the dimensional stability of polyester base film and contact prints it is essential that HEAT NOT BE USED in drying these materials. The film and prints should be dried by natural means in a dust-free area. Polyester base prints should be sponged off and air-dried. Heated belt type dryers shall not be used to dry polyester base prints. Evidence of the use of heat in drying these materials, such as buckling, warping, cracking of the backing or shrinkage in excess of the amounts specified below shall be cause for rejection of the materials.

1. Film. The shrinkage of the film in any direction thirty (30) days after developing and drying shall not exceed five (5) parts per ten thousand (10,000) with a differential shrinkage between measurements in any two (2) directions not exceeding five (5) parts per ten thousand (10,000) when the film has been conditioned in an atmosphere of seventy (70) degrees fahrenheit (70°F) plus or minus two (2) degrees and fifty percent (50%) relative humidity plus or minus three percent (3%) for a period of at least seven (7) days.

2. Polyester Base Contact Prints. The difference in length and width measurements between individual polyester base contact prints and corresponding polyester base roll negatives shall not exceed five (5) parts per ten thousand (10,000), and differential between length and width measurements on individual polyester base contact prints shall not exceed five (5) parts per ten thousand (10,000), exclusive of any differences between collimation marker distance in the taking camera when measurements are taken after the prints and film have been conditioned in an atmosphere identical with respect to temperature and humidity conditions described in subparagraph C 1. above.

28. COMPOSITION OF NEGATIVE ROLL.

A roll of aerial negatives shall consist only of exposures made with the same camera (lens-cone combination) having the same distances between collimation marks. A roll may consist of negatives from portions of several film rolls. The composite shall be accomplished by properly splicing the several portions together to form a single roll. Film spools having a diameter of approximately 5" shall be used, and only that length of film which can

be wound on a spool without strain, leaving at least 1/8 inch of flange exposed shall be placed on each spool. Leaders and trailers shall be at least twenty-seven (27) inches in length. Whenever possible, 27 inches of blank or unused film should be left beyond the first and last used negative on each roll to serve as leader and trailer. All film leaders and trailers shall be of the same base as the roll film and if spliced shall be so spliced that the emulsion side of the leader and the emulsion side of the film face the same way.

29. SPLICING POLYESTER BASE FILM.

Splicing of polyester base film shall be accomplished with 3/4" pressure sensitive polyester base tape, number 853, manufactured by the Minnesota Mining and Manufacturing Company, or equivalent. The splices shall be of the butt joint type with tape placed on both sides of the splice. Particular care shall be given to alignment of the film when splicing in order that the film will be perfectly straight after splicing. A splice within a roll shall in no case be closer than 9 inches from the image edge of any accepted negative.

30. EDITING OF AERIAL NEGATIVES.

A. Required Editing. Each aerial negative (including those stamped rejected) shall be marked clearly with the appropriate county designating symbol, the roll identification and serial number of the exposure (example: ABC-LBB-110) and with date of exposure (example: 4-12-61). The county designating symbol and the roll letters to be used shall be as specified in the Bid Schedule. The numerical portion of the roll identification shall be obtained by numbering the rolls of film used for each county (or for each block if block-flown) in an unbroken series beginning with number one. The exposures on each roll shall be numbered in an unbroken series beginning with number one. The exposure number should not be preceded with a naught (0). No space or hyphen should be shown between the roll number and the letters in the roll identification. Additional editing as follows shall be placed on the first and last used negative of each roll. The initials of the owning agency (ASCS) and the approximate scale of the negatives shall be placed in a position immediately preceding the county symbol (thus: ASCS-1:20,000 ABC-LBB-110). Additional editing as follows shall

be placed on the first and last used negative of each flight strip. The abbreviation of the standard civil time of day of the exposure shall be placed immediately following the date (thus: 4-22-61-10:25).

B. Editing Negatives From Reflights Required By ASCS. Rolls of film ~~used~~ in photography of reflights ordered by ASCS shall be numbered in an unbroken series beginning with the number immediately following the last roll number used in the original photography of the county or block.

C. Type and Size Of Characters And Application. The characters used in marking negatives shall be of the Gothic type and shall be approximately one-fourth ($1/4$) inch high. They shall be sharp and uniformly applied on all negatives. The characters shall be placed on the non-emulsion side of the negatives and may be applied by use of a mechanical stamp with opaque ink or by neatly drafting them. Their application shall be such that they will print clearly in positive form on the image of the photograph.

D. Position Of Editing. The designating symbol, roll identification and exposure serial number shall be placed in the north-east corner of each negative resulting from north-south flights and in the northwest corner of each negative resulting from east-west flights. The abbreviations of the date shall in each case be placed in the adjacent corner in a counter-clockwise direction. The editing shall be positioned so that each group of characters will be not less than $1/8$ inch or more than $1/4$ inch from the related image edge of the negative.

E. Assigning Roll Numbers. The rolls of film used in the photography of each county (or block) shall be numbered consecutively beginning with number 1 followed by the letter designation as specified in the Bid Schedule, except that where the photography for a COUNTY is comprised of two or more separate areas, consecutive roll numbering shall not be used if it results in assigning the same roll number to more than one roll of negatives bearing the same symbol. Rolls of film used in the photography of reflights ordered by the ASCS shall also be numbered consecutively, starting with the next highest roll number as assigned to the original rolls. Such roll numbers shall not duplicate roll numbers already assigned for a county or block. Entire rolls of film rejected by the contractor may or may not be assigned roll numbers but should not be delivered to the ASCS unless the negatives cover classified areas. When roll numbers are assigned to entire film rolls rejected by the contractor, such roll numbers should be listed as rejected on the transmittals enclosed in film shipments.

F. Assigning Symbols. When counties are photographed as a block, each individual aerial negative covering a part of two or more counties in the block should carry but one symbol. The symbol to be assigned to such a negative should be for that county which has the largest area represented on the negative.

G. Rejected Negatives. All negatives rejected by the contractor which are included in a roll containing accepted negatives, shall be marked "rejected." Such negatives shall not be removed from the roll. The word "rejected" shall be placed immediately below the symbol, roll and exposure number editing on the non-emulsion side of the negative.

31. PHOTOGRAPHIC INDEX OF AERIAL PHOTOGRAPHY.

A photographic index (hereinafter called photo-index) shall be prepared of the photography secured for each county by assembling the individual singleweight contact prints into their proper relative positions and directly copying the assembly photographically to a scale of one inch equals one mile on one or more 20" x 24" sheets of commercial safety base film. Only the number of prints necessary to fulfill county coverage requirements as specified in paragraph 24 should be used in the assembly. In the event the photography secured for a county consists of two or more separate areas, all or as many of such areas as is conveniently possible may be indexed on one 20" x 24" sheet. Such separate areas should be located in their proper relative positions on the negative and each such area clearly identified with its assigned area designation. When the county or area flown is too large to be shown on one 20" x 24" sheet, additional 20" x 24" sheets shall be used. (See Figures 2 and 3.)

A. Assembly Of Singleweight Contact Prints. Singleweight glossy contact prints, prepared to conform with requirements of paragraphs 10B and 27 hereof, representing the required coverage for a county as specified in paragraph 24 shall be carefully laid out so that corresponding images between overlapping prints are properly matched, with roll and exposure editing showing. There shall be no dovetailing of prints within the assembly. Mismatches in the assembly, not caused by differences in elevation, shall be limited to an amount not to exceed fifteen hundredths (.15) of an inch on the final photo-index. The assembly of prints shall

provide coverage beyond the county boundary as specified in paragraph 24. At breaks in flight strip, only that print required to provide no less than 100 percent nor more than 140 percent endlap shall be used in the assembly. When staples are used to secure prints to a base board, they shall be applied in sufficient numbers to prevent the casting of shadows from the curl of print edges, but shall not be placed over editing intended to be visible on the photo-index. The contrast and tone of all contact prints used in the assembly shall be approximately the same.

B. Editing Stickups To Be Placed On Assembly. Before the index assembly of prints for a county is photographed, stickups bearing the date, designating symbol, roll identification and exposure number, shall be placed on the contact print at each break in flight strip and on the end prints of each flight strip for the county or part of a county. Where there are three or more sheets in line of flight the stickups shall also be placed on prints in the assembly so as to appear on the top of the intermediate sheet or sheets. The stickups shall be neatly placed along the top of the contact print and positioned so as to completely cover the editing appearing on the print which it identifies. The stickups for the hidden print furnishing 100 percent or more endlap at a break in flight strip shall be directly below the stickup number on the covering print. The characters in the editing to be placed on the stickups shall be approximately 1/4 inch high, placed closely together, and the individual groupings of characters separated with a 1/10 inch dash, thus: 4-12-61-ABC-1BB-110. The stickups shall be of a size not in excess of that necessary to accommodate the editing characters plus a .02 inch margin.

C. Title Block. Each photo-index sheet shall contain a neat and legible title block executed in accordance with the examples shown in Figures 2 and 3. The title block for each sheet shall be placed ON and photographed WITH the assembly of single-weight contact prints as required for each photo-index sheet. The title block shall be positioned as to appear across the bottom of each index sheet. It shall be prepared so that the size and weight of the lettering will be in the same relationship to the dimension of the title block as illustrated in the examples.

FIGURE 2

SPEC. ASCS-AP-201

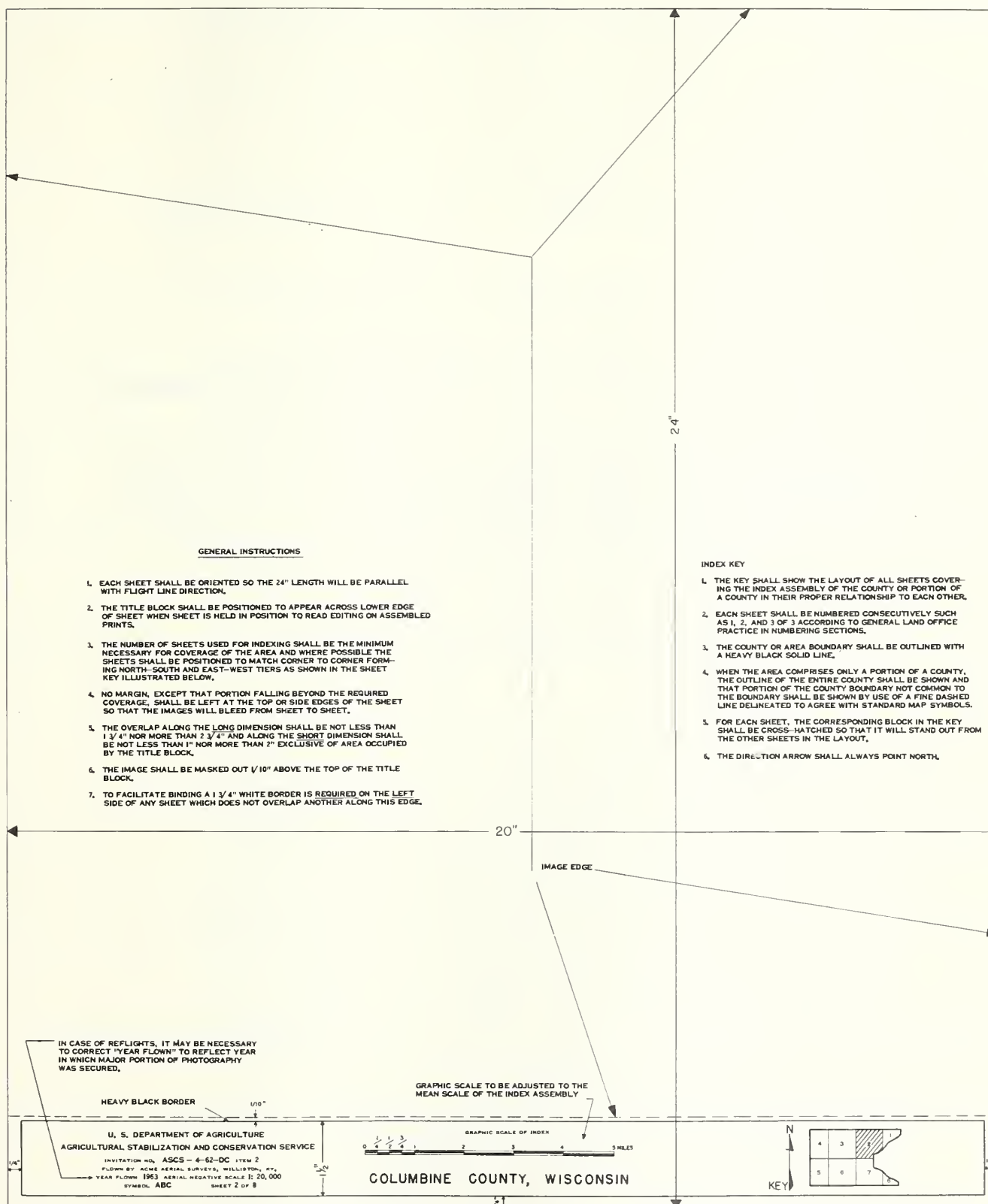
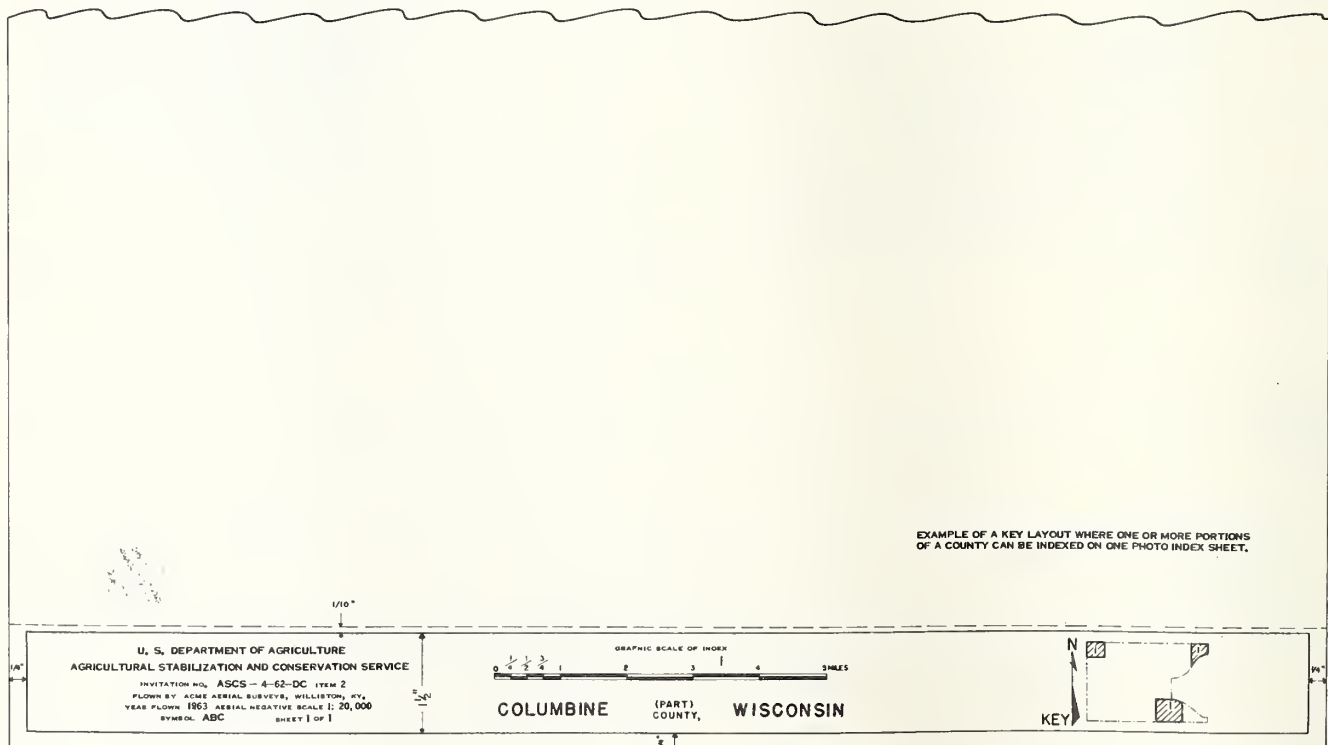
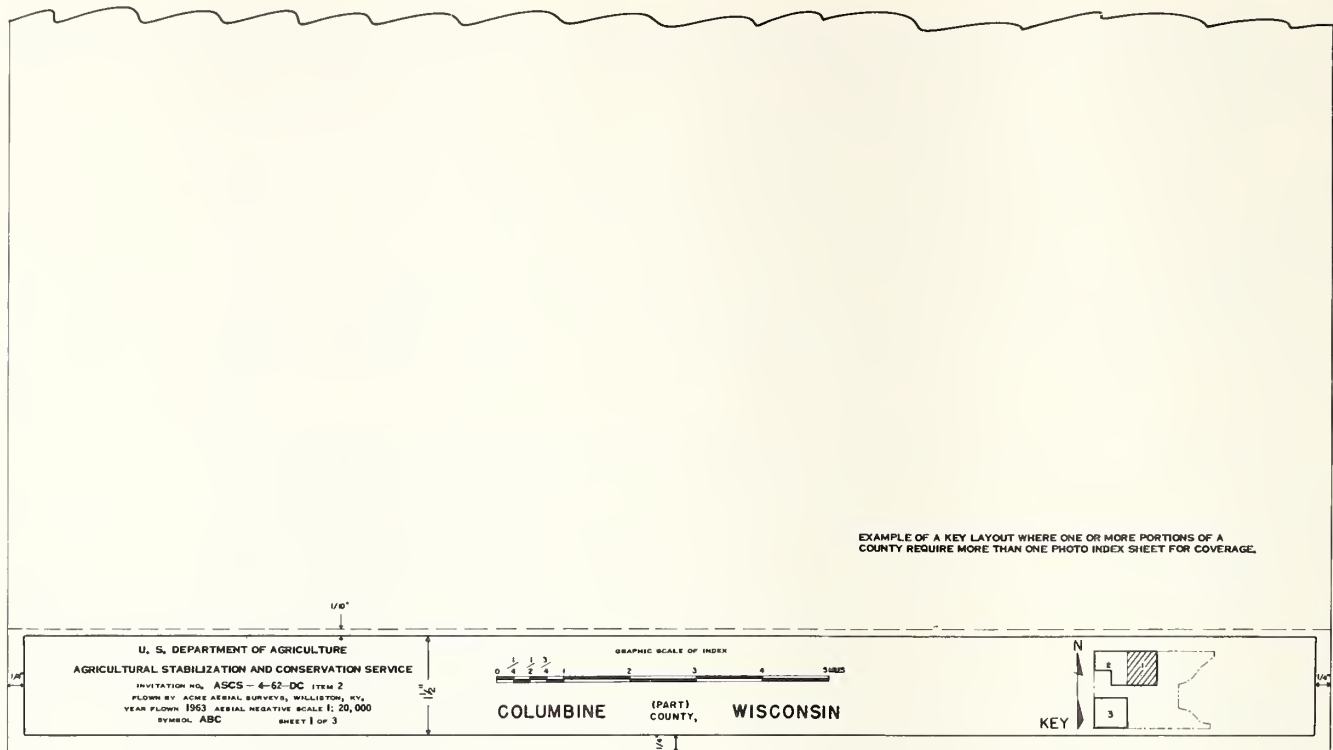


PHOTO INDEX & TITLE BLOCK DESIGN

FIGURE 3

SPEC. ASCS-AP-201



TITLE BLOCK DESIGN

D. Orienting The Index Sheet. Each index sheet shall be oriented with the flight strips running parallel with the 24 inch dimension of the sheet. The sheet shall be oriented so that north is at the top for north-south flying and so that west is at the top for east-west flying.

E. Scale of Photo-Index Negatives. Photo-index negatives shall be made at a scale of approximately one inch (1") equals one (1) mile.

F. Preparation Of Photo-Index Negatives.

1. Photo-index negatives shall be prepared by photographing the assembly of singleweight contact prints on twenty by twenty-four inch (20" x 24") unexpired, commercial, safety base film. All photo-index negatives shall conform with photographic quality requirements as contained in paragraph 27 of these specifications. When more than one negative is required to copy the index assembly, the overlap of imagery between such negatives shall be not less than 1-3/4" or more than 2-3/4" along the long dimension of the sheet and not less than 1" and not more than 2" along the short dimension of the sheet exclusive of the area occupied by the title block.

2. To facilitate binding, a 1-3/4" white border is required on the left side of any sheet which does not overlap another along this edge. Mismatches of imagery between the photo-index negative sheets shall not exceed fifteen-hundredths (.15) inch. The county or area boundaries shall be neatly delineated in their correct geographical positions on the non-emulsion side of the negative by use of lines not in excess of two-hundredths inch (.02") in width, using a graphite type opaque. The boundary lines shall be delineated to agree with conventional topographic map symbols and shall be broken at points in the boundary intersected by stickups or editing on prints in the assembly. All areas on the index outside of the index assembly and title block shall be masked out by use of opaque on the emulsion side of the negatives. The opaque used shall be of the graphite type which will not crack or flake. In order that imagery will bleed from sheet to sheet, no border shall be provided in the overlap area between sheets. No portion of the required coverage outside of a county or area boundary shall be cut off or otherwise deleted from the index negatives.

G. Photo-Index Prints. The photo-index prints shall be prepared by contact printing the index negatives on standard 20" x 24" unexpired, commercial grade, singleweight, semi-matte photographic paper. There shall be uniform tone, contrast and density throughout all prints required for coverage of the area. The quality of the prints shall conform with requirements of paragraph 27A of these specifications.

H. Remaking The Photo-Index Negatives And Prints. In case it is necessary to remake a photo-index negative because of reflights ordered by ASCS or because the index negative was rejected by ASCS, the remade index negative and prints shall be prepared in the same manner employed in the preparation of the originals. In the event of reflights ordered by ASCS, it may be necessary to correct the title block with respect to the year in which the major portion of the photography was secured.

SECTION 5. PHOTOGRAPHIC MATERIALS TO BE DELIVERED

32. NEGATIVES AND PRINTS.

The following photographic materials for each county shall be delivered by express, mail, or similar expeditious means to destinations designated by ASCS:

A. All aerial negatives and photo-index negatives.

B. One (1) set of polyester base contact prints (one print from each negative required for coverage of the county). If block-flown, only one print need be furnished from each negative for coverage of the block. (Duplicate prints at county lines within the block will not be required.)

C. One (1) set of singleweight contact prints (one print from each negative as required in the photo-index assembly for the county). The singleweight contact prints used in preparing the photo-index assembly may be delivered for this set, if in good condition.

D. One (1) set of photo-index prints for each county.

E. A Transmittal memorandum shall accompany each shipment itemizing the materials included in the shipment according to the following example:

1. Invitation and item numbers.
2. County names.
3. Roll numbers.
4. One (1) set polyester base contact prints.
5. One (1) set photo-index negatives.
6. One (1) set photo-index prints, etc.

A copy of the transmittal memorandum shall be attached to the receipt from common carrier specified in paragraph 33 E.

33. SHIPMENT OF PHOTOGRAPHIC MATERIALS.

A. Preparation Of Film For Shipment. Before shipment, all film shall be thoroughly cleaned and wound on spools of approximately 5 inch diameter, with the emulsion facing the core of the roll.

B. Film Cans. All aerial roll film shall be shipped in black metal cans having a thickness of at least one-hundredth (.01) of an inch. Each film can shall be lined with a substantial snug-fitting cylindrical cardboard or fibre liner having a thickness of approximately three-thirty seconds of an inch. The bottom of the can and the lid shall be similarly lined and all such lining shall be glued in place or held in by pressure. The inside diameter of the lined film can shall correspond to the diameter of the film spool. The metal at the top of the can and the lid shall be smooth with no sharp projections which might present a hazard to handlers. Film cans furnished which do not substantially meet these specifications may be rejected by ASCS.

C. Film Can Labels. A film can label shall be completed for each roll and placed loose inside the can containing the roll to which it pertains. Such labels shall be prepared by neatly typing the breakdown of only the usable negatives in each roll, listed in the order that they appear on the film roll. Can labels will be furnished by ASCS.

D. Packaging For Shipment. All aerial roll negatives shall be placed in cans (see paragraph B above) and carefully packed in substantial wood, metal or fibre boxes for shipment. Contact prints shall be arranged in order by flight strips. Within each flight strip the arrangement shall be as shown in the photo-index. A paper band shall be placed around the set of prints for each flight strip. The name of the State and county and the flight strip number shall be marked on the band. All polyester base contact prints shall be trimmed leaving a 1/16 inch margin outside the photographic image. No stamping or lettering shall be placed on the contact prints. Photo-index film and prints shall be shipped in a flat condition.

E. Receipt From Common Carrier. The contractor shall furnish promptly to ASCS a receipt from the common carrier, or a photographic copy thereof, showing clearly the date of each separate shipment. A copy of the transmittal memorandum specified in paragraph 32 E shall be attached to the receipt from common carrier.

PART 3
Special Conditions

PART 3. SPECIAL CONDITIONS

34. CONDITIONS OF BIDDING.

A. Bidder Qualifications. Bids will be accepted only from bidders who on or before the bid opening date specified in the Bid Schedule have filed, on forms prescribed by the ASCS a certified Financial Statement, a certified Statement of Facts and a sample polyester base negative and polyester base contact print for consideration by ASCS. The ASCS reserves the right to disapprove any bidder for contract award who in the opinion of ASCS is determined to be not qualified on the basis of the Statement of Facts, Financial Statement and sample negative, print and other available information, which may include a facility inspection.

1. Financial Statement. Each bidder shall submit with the first bid submitted by him in each calendar year a certified statement of his current financial status unless such statement is already on file with ASCS. In addition, ASCS reserves the right to require a more up-to-date Financial Statement in connection with the submission of any bid. All Financial Statements submitted in accordance with the above shall be prepared on the form furnished by ASCS and shall represent a true statement of the financial status of the contractor as of the effective date of the report. Financial Statements which are more than one year old may be considered obsolete by ASCS.

2. Statement of Facts. Each bidder shall submit with the first bid submitted by him a certified Statement of Facts unless such a statement is already on file with ASCS. The ASCS reserves the right to require a more up-to-date Statement of Facts in connection with the submission of any bid. All Statements of Fact, submitted in accordance with the above, shall be prepared on the form furnished by ASCS and shall be a true statement regarding the various items of information on the form, as of the effective date submitted.

3. Samples. Unless acceptable samples are already on file with ASCS, each bidder shall submit with his bid one polyester base negative and one polyester base contact print, as samples of the best quality of negatives and prints he is able to furnish. Such samples shall approximate a scale of 1:20,000, and shall show terrain having an average amount of clear-cut detail. The ASCS reserves the right to request

additional sample negatives and prints in connection with submission of any bid, or in connection with any camera, as specified in paragraph 7 of Part 2, Technical Specifications.

B. Camera Test Reports. Unless otherwise specified in the Bid Schedule, three photographic copies of a Camera Test Report from the National Bureau of Standards on each camera to be used will be required. Unless already on file with ASCS, such reports for at least one camera to be used shall accompany the bid or be submitted to ASCS before an award will be made. No Test Report will be considered acceptable unless it includes information on all of the items listed under paragraph 4, Part 1 of these specifications.

C. Bidder Responsibility. Bidders are expected to examine the specifications and maps, to visit the locality of the work if necessary, and to make their own estimates of the facilities needed and the difficulties attending the execution of the proposed contract, including local conditions, uncertainty of weather, availability of landing fields, and all other contingencies.

D. Requests For Clarification. Any request for clarification or interpretation of any portion of the specifications or advertisement should be made in writing or by telegram in time to be received by the officer issuing the invitation at least one week prior to the time fixed for the opening of the bids.

35. SPECIFICATIONS FORM PART OF CONTRACT.

Each proposal on AD-207, Invitation, Bid and Award (Aerial Photography) (Exhibit 1) will be received with the understanding that these specifications form a part thereof, and that when accepted by the Government in writing within the time specified, which in no event shall be less than 15 calendar days, such accepted proposal shall constitute a contract between the bidder and ASCS.

36. NOTICE TO PROCEED.

The notice to proceed will be sent by registered mail or telegram promptly after approval of the contract and performance bond.

37. NOTICE OF BASE ADDRESS.

The contractor shall notify ASCS of the location or locations of his base or bases of laboratory and field operations and the names of the pilot and photographer for each plane prior to but in no event later than the date on which he commences operations.

38. PHOTOGRAPHIC SEASON.

The period each year during which photography may be secured for each item shall be as specified in the Bid Schedule. Photography will not be permitted beyond such specified dates.

39. MAXIMUM PERIOD FOR PHOTOGRAPHY.

Photography of an item shall be completed within the first two photographic seasons for that item following the date of the contract award, except as provided in paragraph 44.

40. TIME ALLOWANCE FOR SHIPMENT OF MATERIALS.

The aerial negatives and photo-index negatives, polyester base contact prints and photo-index prints for all original and ASCS ordered reflight photography for a county or block, shall be shipped as soon as possible but not later than 45 calendar days after the date the original or reflight photography is completed. It shall be the responsibility of the contractor to take all local shipping conditions into consideration in making shipments of materials within the required time. The term original photography includes reflights made at the discretion of the contractor. The singleweight contact prints shall be shipped as soon as possible after receipt of the notice of acceptance from ASCS.

41. PAYMENTS.

Payment with respect to each county will be made upon completion and final acceptance of all work in connection with any such county.

A. First Year Completion Incentive Payment. For each complete portion of an item (or for a complete item where portions are not designated) photographed within the limits of the first photographic season as specified in the Bid Schedule and for which complete and acceptable materials are timely shipped in accordance with paragraph 40 hereof, the ASCS agrees that the contractor shall be paid 25 cents per square mile in addition to the accepted bid price as a "first year" completion incentive. All photographic materials timely shipped in accordance with the above shall be acceptable to the extent that no reflights are required by the ASCS which cannot be secured during the first photographic season, processed and shipped on or before the last date for making such shipments, except

that the time of shipment of singleweight contact prints will not affect eligibility to receive the incentive payment. During the first year of operation, extensions of time for completing the work will not be granted in accordance with paragraph 2 of the General Provisions. The incentive payment will be made upon determination by ASCS of eligibility for such payment.

B. Payment for Second Year Shipments. The payment for all second year photography will be the accepted bid price.

42. WEEKLY PROGRESS REPORTS.

Weekly Progress Reports showing the progress of aerial photography on each item for each week ending Saturday shall be mailed to ASCS in conformance with paragraph 13 of the General Provisions. Such reports shall be mailed (airmailed if possible) not later than Monday of the succeeding week. A report is required from each photographic crew assigned to the item. Such reporting shall start with the week the contractor places the photographic crew(s) on the item and reports shall be furnished for each week thereafter until the photography is completed or until the end of the photographic season. Reports are required during this period even though crews are temporarily not maintained on the item.

43. LIQUIDATED DAMAGES.

Unless otherwise specified in the Bid Schedule, the fixed, agreed and liquidated damages to be paid the Government by the contractor in accordance with the bid schedule and paragraph 13 of the General Provisions for each day of delay in mailing Weekly Progress Reports, as specified under paragraph 42 hereof, shall be \$10.00 per day.

44. TERMINATION FOR DEFAULT.

If acceptable photographic materials for the entire item have not been secured by the end of the period specified in paragraph 39 and shipped within the time allowance stated in paragraph 40, the contract will be subject to termination for default in accordance with paragraph 2 of the General Provisions. No weather conditions other than flood and snow accumulation during the second photographic season will be considered as a basis for granting an extension of time into the third season.

AD-207 11-61	INVITATION, BID, AND AWARD (Aerial Photography)	REFERENCE
INVITATION FOR BIDS		DATE ISSUED
ISSUING OFFICE	ADDRESS BIDS TO	

SEALED BIDS in single copy, subject to (1) the Terms and Conditions of this Invitation for Bids, (2) the accompanying Bid Schedule, (3) the General Provisions and (4) the following: _____

will be received at the above address until _____, _____ and then publicly opened. Place Name of Bidder, Invitation No., and Date of Opening on left-hand corner of envelope.

BID (This Section to be completed by Bidder)	DATE BID SUBMITTED
--	--------------------

The undersigned agrees, if this bid is accepted within _____ calendar days after date of opening, to complete all work specified in strict accordance with the above-identified documents and the General Provisions on the reverse hereof, at the prices stated in the Bid Schedule, which prices include all applicable Federal, State, and local taxes. Discounts will be allowed for prompt payment as follows:
 _____ percent, 10 calendar days; _____ percent, 20 calendar days; _____ percent, 30 calendar days.

BIDDER REPRESENTS (Check appropriate boxes)

- That he ☐ is, ☐ is not, a small business concern. (See definition on the reverse hereof.)
- That he operates as an ☐ individual, ☐ partnership, ☐ corporation, incorporated in the State of _____.
- (a) That he ☐ has, ☐ has not, employed or retained any company or person (other than a full-time bona fide employee working solely for the bidder) to solicit or secure this contract, and (b) that he ☐ has, ☐ has not, paid or agreed to pay any company or person (other than a full-time bona fide employee working solely for the bidder) any fee, commission, percentage or brokerage fee contingent upon or resulting from the award of this contract, and agrees to furnish information relating thereto as requested by the Contracting Officer. (For interpretation of this representation, including "bona fide" employee, see Code of Federal Regulations, Title 44, Chapter I, Part 150.)
- That he ☐ has, ☐ has not, participated in a previous contract subject to the provisions of Section 301 of Executive Order 10925, Establishing the President's Committee on Equal Employment Opportunity.
- That he ☐ is, ☐ is not, owned or controlled by a parent company. (See definition on the reverse hereof.) If "yes", insert name and principal address of parent company _____

Bidder will insert in the space(s) below the Employer's Identification Number (E.I. No.) (Federal Social Security Number used on Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941), E.I. No. of Bidder _____ E.I. No. of Parent Company (if any) _____.

CERTIFICATION OF NON-COLLUSION

By submission of this bid or proposal, the bidder or offeror certifies that: (a) he has developed his bid or proposal without collusion and with the intent that it be fully competitive; and (b) he has not directly or indirectly induced, and will not directly or indirectly induce, any person, firm, or corporation to submit a collusive bid or proposal or to refrain from submitting a bid or proposal in connection with the subject procurement. (Deletion of this certification or any modification thereof will cause the bid or proposal to be rejected. A certification which is not in accord with the facts will make the bidder or offeror subject to punishment as provided by law and to the possibility of debarment in connection with subsequent award of Government contracts.)

SIGNATURE OF BIDDER	ADDRESS OF BIDDER
---------------------	-------------------

AWARD (This Section for Govt. use only)	DATE OF AWARD
---	---------------

Accepted as to items numbered _____ Amount _____

By _____ Title _____ Contracting Officer

TERMS AND CONDITIONS OF THE INVITATION FOR BIDS

1. **SUBMISSION OF BIDS.**--Bids and modifications thereof shall be enclosed in sealed envelopes addressed to the issuing office, with the name and address of the bidder, the date and hour of opening, and the invitation number on the face of the envelope. Telegraphic bids will not be considered unless authorized by the Invitation; however, bids may be modified by telegraphic notice provided such notice is received prior to the time set for the opening of the bids.

2. **WITHDRAWAL OF BIDS--LATE BIDS.**--Bids may be withdrawn by written or telegraphic notice; however, bids and modifications or withdrawals thereof received after the time set for opening will not be considered, unless they are received before the award is made, and it is determined by the Government that failure to arrive on time was due solely to delay in the mails or by the telegraph company, for which the bidder was not responsible, or mishandling by the Government after receipt.

3. **AWARD OF CONTRACT.**--The contract will be awarded to that responsible bidder whose bid, conforming to the Invitation for Bids, will be most advantageous to the Government, price and other factors considered. The Government reserves the right to reject any or all bids and to waive informalities and minor irregularities in bids received. A written award mailed (or otherwise furnished) to the successful bidder within the time for acceptance specified in the bid shall be deemed to result in a binding contract without further action by either party.

4. **BID GUARANTEE.**--A bid guarantee of not less than 20% of the amount of the bid is required with the bid. Failure to furnish same by the time set for opening of bids, may be cause for rejection of the bid.

A bid guarantee may be in the form of a bid bond, postal money order, certified check, cashier's check, irrevocable letter of credit or, in accordance with Treasury Department regulations, bonds or notes of the United States. Bid guarantees, other than bid bonds, will be returned (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of such further

contractual documents and bonds as may be required by the bid as accepted.

If the successful bidder withdraws his bid within the period specified therein for acceptance (60 days if no period is specified) or, upon acceptance thereof by the Government, fails to enter into the contract and give bonds within the time specified (10 days if no period is specified) after the forms are presented to him, he shall be liable for any difference by which the cost of procuring the work exceeds the amount of his bid, and the bid guarantee shall be available toward offsetting such difference.

5. **DISCOUNTS.**--Discounts offered for a period of less than twenty (20) days will not be considered in determining the low bidder. Time, in connection with discounts offered for prompt payment, will be computed from the date of final acceptance of all required material for the area on which payment is claimed, or the date correct contractor's invoice is received by the Government, whichever is later.

6. **DEFINITION OF SMALL BUSINESS.**--Generally, a small business concern for the purpose of Government procurement is a concern that (1) is not dominant in its field of operation and, with its affiliates, employs fewer than 500 employees, or (2) is certified as a small business concern by Small Business Administration. (See Code of Federal Regulations, Title 13, Part 121, as amended, which contains the detailed definition and related procedures.)

7. **DEFINITION OF PARENT COMPANY.**--One which either owns or controls the activities and basic business policies of the bidder. To own another company means the parent company must own at least a majority (more than 50%) of the voting rights in that company. To control another company, such ownership is not required; if another company is able to formulate, determine, or veto basic business policy decisions of the bidder, such other company is considered the parent company of the bidder. This control may be exercised through the use of dominant minority voting rights, use of proxy voting, contractual arrangements, or otherwise.

GENERAL PROVISIONS

1. **CHANGES.**--The Contracting Officer may, in writing, order changes in the specifications within the general scope of the contract.

If changes increase or decrease the cost of, or time required for, performing the work, upon assertion of a claim by the Contractor before final payment of the contract, a written equitable adjustment shall be made. If the adjustment cannot be agreed upon, the dispute shall be decided pursuant to Clause 3.

2. **TERMINATION FOR DEFAULT--DAMAGES FOR DELAY--TIME EXTENSIONS.**--(a) If the Contractor does not prosecute the work so as to insure completion, or fails to complete it, within the time specified, the Government may, by written notice to the Contractor, terminate his right to proceed. Thereafter, the Government may have the work completed and the Contractor shall be liable for any resulting excess cost to the Government. If the Government does not terminate the Contractor's right to proceed, he shall continue the work and shall be liable to the Government for damages for delay.

(b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under (a) above because of any delays in completion of the work due to causes beyond his control and without his fault or negligence, including but not restricted to, acts of God, acts of the public enemy, acts of the Government (in either its sovereign or contractual capacity), acts of another contractor in the performance of a

contract with the Government, fires, epidemics, quarantine restrictions, strikes, freight embargoes, weather conditions to the extent provided in the contract specifications, or delays of subcontractors or suppliers arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and subcontractors or suppliers: Provided, That the Contractor shall within 10 days from the beginning of any such delay, unless the Contracting Officer shall grant a further period of time prior to the date of final settlement of the contract, notify the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay and extend the time for completing the work when in his judgment the findings of fact justify such an extension, and his findings of fact shall be final and conclusive on the parties hereto, subject only to appeal as provided in Clause 3 hereof.

3. **DISPUTES.**--Any dispute concerning a question of fact arising under this contract, not disposed of by agreement, shall be decided by the Contracting Officer, who shall reduce his decision to writing and furnish a signed copy to the Contractor. Such decision shall be final and conclusive unless, within 30 days from the date of receipt thereof, the Contractor mails or otherwise furnishes to the Contracting Officer a written appeal, addressed to the Secretary of Agriculture. The Contractor shall be afforded an opportunity to be heard and to offer evidence. The decision of the Secretary or his duly authorized representative for the determination of such appeals, shall be final and conclusive unless fraudulent, or

capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the contract and in accordance with the Contracting Officer's decision.

4. **RESPONSIBILITY OF CONTRACTOR.**--At his own expense the Contractor shall: (a) obtain all required licenses and permits; (b) provide competent superintendence; (c) take precautions necessary to protect persons or property against injury or damage and be responsible for any such injury or damage that occurs as a result of his fault or negligence; (d) perform the work without unnecessarily interfering with other contractors' work or Government activities; (e) be responsible for all photographic materials while in his custody including when in transit until completion and final acceptance; (f) hold and save the Government, its officers, agents, servants, and employees, harmless from liability of any nature or kind, including costs and expenses, for or on account of any patented or unpatented invention, article, or appliance manufactured or used in the performance of the contract, including their use by the Government.
5. **MATERIALS AND WORKMANSHIP.**--The work shall be under the general direction and subject to the inspection of the Contracting Officer or his duly authorized representative who may require the Contractor to correct defective workmanship and materials without cost to the Government.
6. **INSPECTION AND ACCEPTANCE.**--An effort will be made to inspect all materials specified in the schedule of the advertisement within 21 calendar days after they are received by the Government at the point designated, after which the Contracting Officer will notify the Contractor in writing whether they are satisfactory and what areas, if any, shall be rephotographed and what materials, if any, shall be remade because of nonconformity with the contract requirements.
7. **PAYMENTS.**--Final payment will be made upon completion and acceptance of all work required hereunder. Partial payments will be made as indicated in the Bid Schedule or Specifications. Progress payments may be made as approved by the Contracting Officer.
8. **OFFICIALS NOT TO BENEFIT.**--No Member of Congress, or Resident Commissioner, shall be admitted to any share or part of this contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.
9. **BUY AMERICAN ACT.**--The Contractor, subcontractors, material men, and suppliers must comply with the Buy American Act of March 3, 1933 (41 U.S.C. 10a-10d) and Executive Order 10582 of December 17, 1954 (19 Fed. Reg. 8723). (In substance the above require use of domestic materials except as otherwise authorized by the Act and Executive Order.)
10. **WALSH-HEALEY ACT PROVISIONS.**--If this contract exceeds \$10,000, it is subject to the Walsh-Healey Public Contracts Act, as amended (41 U.S. Code 35-45), and there are hereby incorporated by reference all representations and stipulations required by said Act and regulations issued thereunder by the Secretary of Labor, such representations and stipulations being subject to all applicable rulings and interpretations of the Secretary of Labor which are now or may hereafter be in effect.
11. **CONVICT LABOR.**--In connection with the performance of work under this contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment at hard labor.
12. **PERFORMANCE BOND.**--The Contractor shall provide Performance Bond, acceptable to the Contracting Officer, on standard Government forms, in the amount of 50% of the contract price, within 10 days after date of notification of contract award.
13. **REPORTS.**--The Contractor shall complete and mail weekly report forms in accordance with instructions of the Contracting Officer for each plane and camera crew, showing the progress of aerial photography on each item for each week ending Saturday. Such reports shall be mailed (air mailed if possible) not later than Monday of the succeeding week.
14. **OWNERSHIP OF NEGATIVES.**--All negatives shall become the property of the Government (including rejected negatives) and shall be delivered in accordance with instructions from the Contracting Officer. During the period the negatives are in the possession of the contractor, and with the prior approval of the Contracting Officer, he may make for commercial use such prints, enlargements, mosaics, and reproductions as he may desire from any such negatives which do not show fortifications, military or naval defenses, or other restricted areas, the photographing of which is prohibited by the Government. Prior to commercial use the Contractor shall remove all agency identification and symbol.
15. **SUBCONTRACTS.**--The Contractor shall not, without prior written approval of the Contracting Officer, enter into any subcontract covering any part of the work contemplated by this contract.
16. **SECURITY REQUIREMENTS.**--In accordance with Title 18, United States Code, Sections 795 and 797, as implemented by Executive Order 10104, concerning restrictions on photographing vital military installations and on reproducing, publishing or selling photographs of such installations, the Contractor shall meet Department of Defense security requirements before photographing any Department of Defense or other installation which is classified for purposes of aerial photography.
17. **UTILIZATION OF SMALL BUSINESS AND LABOR SURPLUS AREA CONCERNS.**--If this contract exceeds \$5,000, the provisions of these clauses shall be applicable:

UTILIZATION OF SMALL BUSINESS CONCERNS

(a) It is the policy of the Government as declared by the Congress that a fair proportion of the purchases and contracts for supplies and services for the Government be placed with small business concerns.

(b) The Contractor agrees to accomplish the maximum amount of subcontracting to small business concerns that the Contractor finds to be consistent with the efficient performance of this contract.

UTILIZATION OF CONCERNS IN LABOR SURPLUS AREAS

It is the policy of the Government to place contracts with concerns which will perform such contracts substantially in areas of persistent or substantial labor surplus where this can be done, consistent with the efficient performance of the contract, at prices no higher than are obtainable elsewhere. The Contractor agrees to use his best efforts to place his subcontracts in accordance with this policy. In complying with the foregoing and with paragraph (b) of the clause of this contract entitled "Utilization of Small Business Concerns," the Contractor in placing his subcontracts shall observe the following order of preference: (1) persistent labor surplus area concerns which are also small business concerns; (2) other persistent labor surplus area concerns; (3) substantial labor surplus area concerns which are also small business concerns; (4) other substantial labor surplus area concerns; and (5) small business concerns which are not labor surplus area concerns.

18. NONDISCRIMINATION IN EMPLOYMENT.--In connection with the performance of work under this contract, unless exempted in accordance with the Rules and Regulations Of the President's Committee On Equal Employment Opportunity (41 C.F.R. Chapter 60), issued pursuant to Section 303 of Executive Order 10925, the contractor agrees as follows:

(a) The contractor will not discriminate against employee or applicant for employment because of race, creed, color, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(b) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

(c) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The contractor will comply with all provisions of Executive Order No. 10925 of March 6, 1961, and of the rules,

regulations, and relevant orders of the President's Committee on Equal Employment Opportunity created thereby.

(e) The contractor will furnish all information and reports required by Executive Order No. 10925 of March 6, 1961, and by the rules, regulations, and orders of the said Committee, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Committee for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled in whole or in part and the contractor may be declared ineligible for further government contracts in accordance with procedures authorized in Executive Order No. 10925 of March 6, 1961, and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order or by rule, regulation, or order of the President's Committee on Equal Employment Opportunity, or as otherwise provided by law.

(g) The contractor will include the provisions of the foregoing paragraphs (a) through (f) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the President's Committee on Equal Employment Opportunity issued pursuant to section 303 of Executive Order No. 10925 of March 6, 1961, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions, including sanctions for non-compliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

TRANSMITTAL AMENDMENTS AND REMOVED PAGES

File all transmittal amendments and removed pages behind this divider. Provisions of removed pages remain in effect for any contracts made during period from date of page issuance to date of amendment removing the page.

